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October 29, 1941

Memorandum for Mr. Capt

Subject: Report on the Monograph Program of the Bureau of the
Census

In accordance with your verbal instructions on September 15, 1941, we have been working to obtain a clarification and crystalization of the monograph programs now being developed by the various divisions of the Bureau of the Census. The following paragraphs are an outline of the work accomplished and a summary description of the present status of the monographic program of the Bureau of the Census along with a number of general principles and recommendations which are submitted for your consideration. Also attached in the form of an appendix is a complete record of our work, the various letters written and received and a summary of the results.

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OUTLINE OF REPORT ON MONOGRAPH PROGRAM

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A. STATEMENT OF PROBLEM AND PROCEDURE

On September 12 and 13, 1941, the Census Advisory Committee had a meeting at which the principle topic of discussion was the development of the monograph program of the Bureau of the Census. Dr. Gray, Acting Chief Statistician of the Research Division presented to the Advisory Committee a summary report of the present status of the decennial census monograph program. This report was supplemented by statements of chief statisticians of the different divisions. On the basis of these reports the Advisory Committee and the attending representatives of the Bureau of the Census discussed many of the problems and ramifications of such a program. The importance and appropriateness of monograph work as a function of the Bureau of the Census was debated and many of the problems and difficulties met in developing such a program were discussed. Reaching the conclusion that a monograph program was extremely desirable from the standpoint of the Census Bureau and of the public interested in census material, the Advisory Committee passed two resolutions recommending to the Director of the Census a policy with respect to analyses of census data and recommending an immediate course of action to implement such a policy without delay. These recommendations were:

RESOLVED, that the Committee recommends to the Director of the Census the following policy with respect to the tabulation and analysis of Census data:

1. Cross tabulations and other statistical analyses rank equal in importance to simple counts, except for those tabulations specifically required by law for purposes of apportionment of Congress, determination of immigration quotas, and similar purposes.

2. The funds, equipment and personnel available for the work of the Bureau should be apportioned between the several phases of collection, tabulation, analysis, and publication in such a manner as to produce results of maximum value. No assumption should

be made that the earlier stages of the work, merely because they come first, have a superior claim on the resources of the Bureau. The work should be planned, the resources budgeted, and the operations controlled in a manner that will insure the realization of the maximum value attainable from each Census.

3. While it may be expedient (a) to arrange tabulations in an order that will make most economical use of the mechanical facilities and reduce costs, and (b) to publish results as soon as they can be produced so that their usefulness will not be lessened by delay, positive measures of budgeting and control should be taken to make sure that this practice does not obstruct fulfillment of the foregoing policies.

RESOLVED, that the Committee recommends to the Director of the Census:

(a) that a monograph program be prepared and transmitted to the Committee by the middle of October,

(b) that the program be based on a review of the plans made previously by the Bureau and a thorough canvass of major users of Census materials to discover other important titles,

(c) that the program include outlines and cost estimates for the monographs that appear to be most valuable in relation to their cost,

(d) that the full time of a suitable member of the Bureau staff, or if necessary an outside consultant, be given to the preparation of this program, and

(e) that arrangements be made to free a part of the time of division chiefs and their professional staff to enable them to participate in the preparation of this program.

Acting upon these suggestions the Director of the Census asked us to organize a study of the census monograph program and to prepare this report. We were assisted in this work by Miss Katherine Parker of the Division of Population and Mrs. Esther Staudt of the Division of Statistical

Research. The procedures followed in formulating this report include the following projects and steps:

1. In order to obtain a perspective of the traditional place of analytical studies in the Bureau of the Census a survey was made of the number, titles, and scope of the monographs and analyses which have been prepared and published by the Bureau of the Census in past years. It is obvious from this survey that analytical work has always been considered an important and integral part of the activities of the Bureau of the Census. While the number of analytical studies has varied somewhat from one census period to another, such studies have always appeared as part of the decennial census work and many others have appeared between census years.

Although it is difficult to characterize this long historical series of studies in a few words, it is probably fair to say that former census work was characterized by a greater attention to critical analyses and interpretations than has been true in more recent times. The fact that the Census Bureau has long enjoyed a reputation as an outstanding and impartial statistical organization is undoubtedly based on the early scientific policy of the Bureau. The partial abandonment of this policy in recent years may possibly impair this high reputation and create the impression that the Bureau of the Census is nothing more than a clerical and tabulation service agency.

2. In addition to the study of the monograph history of the Census Bureau, a survey was made of the minutes of previous Census Advisory Committee meetings, and budget justifications for the Sixteenth Census. This survey was made in order to determine to what extent the Bureau has, by its own record, committed itself to the development of a monograph program during the 1940 decennial census period. The minutes of the various Advisory Committee meetings indicate that the Census Bureau has considered from the outset the development of such a program during the census period.

The justifications submitted to the Budget Bureau are not so clear on this point. The estimates for one division, namely, the Division of Agriculture, include a small item for monograph work. The budget estimates for another division, the Division of Vital Statistics, specifically set up a considerable sum of money to be spent during the census period for monographs and other special projects. However, there was no specific indication in these estimates to show what sum was intended for the monograph program as distinguished from other items included in the request. Although other division chiefs have, from the first, contemplated a certain number of monographic studies, in most instances specific appropriations for this purpose were not shown separately in the requests as submitted to the Budget Bureau and to Congress. While it is recognized that under the legal arrangement by which the Census Bureau receives its appropriation there is no definite obligation to follow either the recommendations of its Advisory Committee or the allotments as submitted to the Budget Bureau, it is none the less apparent that certain commit-

ments have been made to carry on a considerable amount of analytical and interpretative work.

3. In order to crystalize a monograph program which is within the range of possibilities, we have proceeded by the following method:

(a) It was first recognized that there were many questions concerning the meaning, scope, and value, of a monograph program within the Census Bureau. To help in obtaining some uniform attitude within the Census Bureau in regard to these questions an evening seminar of statisticians and technicians was organized. While no definite results in the form of written conclusions were obtained from this seminar it assisted in stimulating considerable critical discussion regarding the monograph program.

(b) The second step was to obtain from each Division a complete list of the monographs and special studies which they have been considering or which had been suggested to them by outside consultants or agencies.

(c) After obtaining this list, a series of conferences were organized with a representative of each division for the purpose of dividing the list of possible studies into those which were most valuable and practical and into a group which were considered of least value or less appropriate for Census Bureau studies. After the possible studies were grouped in this way

each Division then prepared for the monographs which were considered of greatest value a statement showing the purpose of such a study, an outline of its contents, an estimate of necessary direct costs and a brief summary of the present status of that study (see Appendix C).

(d) As additional assistance to the divisions in crystalizing their monograph programs these group lists of possible studies and the outlines for the most valuable studies were sent to a list of more than 125 consultants. The divisions and members of the Advisory Committee were requested to prepare short lists of consultants who would be best qualified to give a comprehensive and well considered evaluation of the proposed monograph program. The outlines and lists of studies were sent to each of these consultants with the request that they give the matter prompt consideration and send us an appraisal of the suggested program, along with any other comments or possible studies that they cared to submit for consideration.

(e) In response to these letters sent to the consultants nearly 50 replies have been received. Most of these replies indicate a careful consideration of the questions submitted to them. The letters received from each consultant have been duplicated and copies have been sent to the

chief of each subject matter division concerned. It was hoped that this method of clearance through a large body of consultants would give the Census Bureau added assurance that its general monograph program was in proper proportion, well directed, and appropriate for Census Bureau work. It was also believed that the letters received would be of some value in guiding the division chiefs in the specific planning for their own program. Each response received from a consultant is included in Appendix E, and a brief summary of all responses relating to particular monographs is included in Appendix C.

(f) Although the budget procedures now followed by the Bureau of the Census are not well adapted to careful cost estimating, each division chief was also asked to make some general statement regarding the budgetary position of his division and to indicate in as definite a manner as possible the monographs and special studies that might be completed with available and anticipated resources. It was hoped by this procedure to be able to obtain a fairly definite idea of the resources which might be available to the Bureau of the Census for special analytical work. The results of this study show that some divisions may be able to complete a good part of their planned monograph program provided requested appropriations for fiscal year 1943 are obtained. In other divisions the present outlook is not favorable to the completion of such studies.

B. GENERAL PRINCIPLES UNDERLYING ' CENSUS MONOGRAPH PROGRAM

In various discussions with the division chiefs regarding the place of a monograph program within the Census Bureau, it was easily seen that before any unified point of view could be obtained, agreement would have to be reached on a number of general principles underlying monograph work. While it is not our function to formulate these principles, the following ideas are submitted for consideration.

1. What is a monograph? Although the term "monograph" usually carries the connotation of a single comprehensive analysis of some one problem which is published as a separate volume, the word is sometimes used in this report as more or less synonymous with all types of general research or analytical activities. Using this broader concept of monograph work it is clear that the Bureau of the Census could indulge in three different kinds of research work. These are:

(a) Special investigations, trial studies, etc., relating to improvement and development of census technics for enumeration, registration and office procedure methods.

(b) The second type of special study which might be undertaken by the Bureau of the Census consists of published reports analyzing, criticising and interpreting the meaning of census data insofar as that meaning is effected by definitions, methods of collection, classification, tabulations, etc.

(c) The third type of study would involve an attempt to interpret census results in terms of their social or economic importance and to discuss the observed results in terms of the other statistical phenomenon relating to them or in terms of possible causation and cure.

It is obvious that if the Census Bureau is to function as an efficient statistical organization, we must conduct studies of the first type whether those studies are published or not. Studies of the second type, namely, the discussion of census results in terms of the methods of collection and classification should also be recognized as a prime obligation of the Census Bureau. No other agency or person among the thousands which use census data is in any position to correctly use our data unless they fully understand the strong and the weak points of the Census Bureau methods and definitions. The third type of study, namely, those involving the social interpretations of our data are perhaps the most attractive from the standpoint of obtaining widespread public recognition of the professional work within the Bureau. However, certain dangers in this type of study should be recognized. Most government agencies are created and continue to exist for the primary purpose of the administration of some administrative policy or program. The statistics collected by any one of these other governmental agencies is, therefore, necessarily determined by and limited by the policy interests of that agency. The Census Bureau, on the other hand, is practically the only governmental office which is not an administrative agency but is purely a fact-finding agency. The Census Bureau

is, therefore, somewhat exceptional inasmuch as it is in a position to do a thoroughly scientific job in the complete and impartial presentation of statistical data. The Bureau has the unequalled opportunity of standing above all other agencies in the collection of statistical data. This unique position can be retained only if the Census Bureau maintains a judicial attitude in its analysis and refrains, to a certain extent, from publishing interpretative analysis which take one side or another of a controversial issue.

In addition to serving as a guide for transmitting valuable statistical information to our consumers a census monograph program serves another purpose. While many people insist that it is the main function of the Census Bureau to present tabulated data to the public, it is also recognized that the staff of the Census Bureau will be greatly assisted in deciding upon the most desirable tabulations when that staff is considering census data from the standpoint of the user. Therefore, if the Census Bureau carries on considerable analytical work it is constantly more aware of the uses to which its data may be put and is, therefore, in a better position to serve the consuming public. This same type of analytical activity will also give the Census Bureau an opportunity to retain during intercensal years a professional staff of high quality.

2. Scope of Monographs.

(a) Comprehensive or specific monographs. Closely related to the question of what is a monograph is the question of the scope or character of a monograph as it

should be published by the Bureau of the Census. Considerable difference of opinion exists among the various chief statisticians of the Bureau of the Census on this question. Some visualize a monograph as a rather brief treatment of a narrow and specific subject, whereas others consider that the monographs should be so planned as to present a broad and general picture of a topic. While perhaps it is not necessary to settle this question definitely in the planning of a monograph program, some general policy should be considered so that the monographs published attain a uniformly high standard. A number of the consultants who replied to the general letter on the monograph program voluntarily raised the question as to whether or not some of the suggested titles were not too narrow in scope. Although some of the correspondents suggested a more specific treatment of smaller topics, it is perhaps a fair statement that the general opinion was that some of the monographs proposed for census publication are not properly broad in scope.

(b) Analysis or general tables. Another problem regarding the scope of a monograph is whether or not it should properly consist of almost all text and analytical material or whether considerable tabular data should also be included. It is clear that no hard and fast line can or should be drawn between the proportion of analysis or tables. Some

tables are merely the presentation of numerical data whereas other tables such as per capita tables, rate tables, or percentage tables are in themselves analytical in nature. Similarly maps and graphs can be considered to be analytical. The point which should be made is that an analytical study consists of something more than the presentation of ordinary tables along with a text which is merely descriptive. Here again it is not possible to determine a definite Bureau policy but the general characteristics of a monograph should be formulated so that the studies published are primarily analytical.

3. Responsibility for monographs. It is suggested that if the Census Bureau adopted as a policy that some monographs should be considered an essential part of the work of each division, that the responsibility for selecting these monographs and for their preparation should be placed primarily upon the chiefs of the individual divisions, and that there be no centralized responsibility for control or coordination of the monograph program. There should be a central responsibility for being informed on the status of the monograph program. This would be facilitated through requesting the divisions to include a statement on status of their monograph program in their monthly reports. Since each division chief is primarily responsible for the content of regular tabulations and text material he must also be primarily responsible for any monograph or special studies which are related to or may be in competition with the regularly assigned activities.

4. Budgeting for monographs. As has already been stated only in the case of a few divisions has there been any definite budgetary provision for analytical studies. Since these special studies, particularly insofar as they interpret the meaning of census tabulations to the public, can be considered as an indispensable part of the work of the Bureau of the Census, it seems that a more rigid budgetary allotment should be made for them. The conflict which now exists between "regular work" and analytical work is partly due to the lack of budgetary provision for special studies. The term "regular work" includes certain tabulations and counts which are required by law and other tabulations which, though not required, are recognized to be necessary. But in addition to these kinds of tables the term "regular work" is expanded to refer to large numbers of cross-tabulations and counts which have no real status either legally or in terms of budget commitments. This regular work can, therefore, be expanded indefinitely and in this way eat up all funds which might otherwise be available for analytical studies and monographs. Unless some definite budgetary allotment is made in advance for monograph work the irresistible trend is for the "regular work" to expand and expand until nothing is left for the preparation or publication of special studies.

5. Authorship. Closely related to the question of whether or not a monograph should be narrow or comprehensive in its treatment of a topic is the question of whether a monograph should be written by one author or should represent the combined efforts of several writers. If only one person is assigned the task of preparing a

monograph it is probable that that monograph will be more limited and narrow in its scope. Most Census Bureau statisticians and technicians have a variety of duties to perform, only one of which is the preparation of an analytical publication. Unless a problem is assigned to several people working in cooperation, it is hardly possible to obtain well rounded studies in the Bureau of the Census.

It should be recognized, however, that one function of a monograph program in the Bureau of the Census is to provide an attractive type of work which will enable the Census Bureau to retain in employment a high grade professional staff. If each professional person is permitted to prepare and publish under his own name a monograph study, the attractiveness of working in the Census Bureau is considerably enhanced. The policies of the various divisions differ somewhat in this regard. Some divisions are writing a few but rather large and comprehensive monographs under the joint authorship of several people, whereas other divisions plan to write a large number of specific monographs each one under the direction of a single author.

The question of authorship also raises another point. Frequently it has been the policy of the Bureau of the Census to give its monograph work out on a contract basis to persons not regularly employed on the Census staff. The advantages and disadvantages of this policy should be considered. In the first place, it may create the impression that the Census Bureau staff is not competent to prepare a scientific article and that, therefore, we must invite outside experts to do this part of our work. A second disadvantage of contract-

ing with outside writers for monograph work is that the Census Bureau in this way loses some control over the manner in which the problem is treated. Although of course the Bureau retains the right to reject or accept any article prepared on a contract basis there still is no question but that an outside person may treat the problem in quite a different manner and with a different viewpoint and technic than if the same problem were considered by our own staff. On the other hand, cooperative research between the Census Bureau and other governmental and private agencies or persons has many obvious advantages. Several agencies have expressed an interest in such mutual studies.

C. PROBLEMS RELATING TO THE PRESENT CENSUS MONOGRAPH PROGRAM

In the paragraphs above some of the general problems and principles underlying a Census analytical program have been stated and discussed. The Census Bureau is, however, presented with the more immediate problem of formulating a program to be completed before the end of the present decennial census period. Whereas it is believed that the principles discussed above should be carefully considered and some general conclusions made in regard to them, there remain other specific problems on which definite decisions must be made. Some of these problems that require more immediate action are listed below:

1. Relation of analytical studies to the defense program. Any broad consideration of the present and future activities of the Bureau of the Census must necessarily be viewed in relationship to the existing national emergencies and the resulting problems of national defense. If the Bureau were considering its analytical program in times of world peace that program could be formulated on quite different principles than those which must be considered now. Recently the Bureau of the Budget has issued a circular (Circular Letter No. 380 dated September 23, 1941) which recommends to the heads of departments and independent agencies that their activities be reconsidered in the light of the national emergency and those activities which can be omitted or postponed be replaced by other activities more immediately related to defense work. In view of such authorization to completely change the work of any agency it is certainly obligatory for the Bureau of the Census to seriously consider what part of the monograph program is an integral and necessary part of the basic census work. In a letter from

Stuart A. Rice, Assistant Director of the Bureau of the Budget dated October 22, 1941, it is stated that "while thus suggesting deferment of most of the monograph program, we would urge that there should be incorporated in the regular census reports more explanatory and critical text than has characterized the reports of recent previous census..... We believe that such interpretation should be required as an integral and necessary part of the task imposed by statute upon the Bureau of the Census and, therefore, one which should be carried out in spite of the competing demands of defense activities. Indeed, the value of the census data to defense agencies as well as others would be greatly increased by making available in the same volume an exposition of the significance and limitations of the tabulated statistics". While this letter from Dr. Rice would seem on first thought to recommend a deferment of the analytical program being considered by the Bureau, it is, on the contrary, rather a strong endorsement of the type of program which ought to be followed by the Census. We have already defined "monographic work" as a broader term involving critical appraisals and interpretations of the census data. It is quite immaterial whether these critical appraisals and interpretations are published as an introductory part of the regular census volume or as separate releases. As a matter of fact the publication of the analytical part of the census work in separate volumes results in a more immediate release of the tabulated material. It is, therefore, suggested that sound census procedure should involve the publica-

tion of data with as little delay as possible and that this should then be followed by the publication of interpretations as separate releases. Therefore, while Dr. Rice's letter is not to be taken as against a monographic program, it must be taken as against certain kinds of monographic studies.

Earlier in this memorandum a distinction has been made between investigations which discuss and appraise census definitions and technical methods and those types of studies which give the more broad sociological or economic conclusions which might be based on the census publications. In considering then, the relation of a census monograph program to defense activities, it may be said that those monographs involving general sociological or economic interpretations could be considered as secondary and therefore could possibly be deferred to some later date. On the other hand, monographs which relate to methodology and to critical interpretation should be considered as a "task imposed by the statute upon the Bureau of the Census" and to be an integral and essential part of the defense work of the Bureau of the Census.

2. At the present time most of the divisions of the Bureau of the Census which are contemplating any real monograph program are considered a large number of possible monographs. Since a good part of the census period is nearly gone it seems that definite administrative action should be taken requesting each division to cut down at once their monographic program to a size which can, with a considerable degree of certainty, be completed. The importance of reaching a definite decision upon this problem without delay is obvious as soon

as the waste of time and money put into a partially completed project is realized. Several divisions are now actively engaged in preparing a number of analytical studies. All of the time and money now being spent on this work will be completely wasted if at some future date they cannot be completed either because of cuts in the division's allotments or because of the exhaustion of the printing fund. Moreover, unless a definite program is fixed, the waste of money on uncompleted projects may hinder the completion of other analytical projects considered of paramount importance. The decision on the size of the monograph program which actually can be completed by each Division is one which must be made between the Director and the chief of that division. But it is clear that the saving of much effort can be made if definite understanding of the extent of each division's program can be had at once.

3. It is difficult to state the exact number of interpretive studies which should be contemplated by the Bureau of the Census during its decennial period. Under ordinary conditions the Bureau could reasonably contemplate the preparation and publication of some 25 to 35 studies. However, if special emphasis is to be given to monographs which are methodologic and critical in character, or have a direct relationship to the defense work of the government, it is doubtful if a program so large should be considered. Probably under present conditions the Bureau would do well to prepare and publish as many as 15 or 20 well rounded and comprehensive analytical studies.

4. In determining the monographs which should be included in such a limited program several factors should be considered. In the first place even if the program is to be somewhat curtailed the Bureau should attempt to publish at least one critical study in each major subject matter division. While one monograph is far inadequate for most subject matter divisions, the Bureau might be criticized unless this minimum standard were met.

Another principle which should be given consideration in the final determination of the monograph program is that those monographs on which considerable work has already been done should have a high priority rating. The fact that work has already started on certain monographs indicates that these are either considered to be of greatest importance, that facilities and data for their completion are most readily available, and they have been thought to be appropriate studies for Census Bureau work. It would be a considerable waste of our resources if the work which has been put into monographs up to date were abandoned and the work on other monographs not yet started was to be taken up.

5. The monographs published by different divisions of the Bureau of the Census will be designed to serve different purposes and will be distributed to different audiences. Some monographs will be largely text, others will contain a good deal of tabular matter. Since the monographs are, therefore, quite diverse in purpose, content and audience, it is suggested that no rigid rules be made forcing them all into a uniform style, size or method of

printing. The type of release which may be appropriate for one study or the monographs of one division may not be most appropriate for other publications. A uniform format would, therefore, serve no real purpose.

6. Extension of Census Period. Although the analytical work of the census is considered to be of great importance, it is necessarily one of the last kinds of work that can be done during the census period. The data cannot be analyzed before the data are available. For this reason a delay in any part of the census work either in the field work, the coding, punching, or tabulation necessarily creates a delay in the analytical work. Frequently, therefore, the analytical work is delayed until the very end of the census period and an attempt is made to prepare the analysis in considerable rush and without the necessary time for a first class job. It has been suggested that, without any increase in funds, the monograph program could probably be very greatly improved and enlarged if permission could be obtained for the expenditure of appropriated funds after the end of the regular census period. It is not known whether it would be possible to obtain such permission for extension of time but the desirability of requesting such an extension should be considered. It is possible that such a request would have the effect of reducing the census appropriation rather than of obtaining an extension of time.

7. Conflict with Regular Work. As discussed above the "regular work" of each division is a somewhat vague and indefinite

expansible concept. In any division there is always considerable outside demand for additional tabulations, cross-classifications, and special compilations which are usually referred to as "regular work" although they have no mandatory legal status. Since these special tabulations are so frequently considered as regular work, it is apparent that the regular work can be so expanded that nothing would be left for analytical work even if the appropriations for the Bureau of the Census were greatly increased. Therefore, quite irrespective of the total amount of money available for the work of any division the critical appraisal of the basic data and the extension of tabulations must be considered as competing. If a definite interpretive program is determined to be an obligation of the Census Bureau, some decisions regarding the proportionate emphasis to be given this part of the regular work must be made. An appraisal must be made of the relative value of parts of the tabulating program and of the analytical work, and a definite decision must be made regarding what is to be sacrificed in order to complete a certain amount of analytical and critical appraisal.

D. RESPONSE FROM CONSULTANTS

The response received from the consultants who were written concerning the Census program was extensive, and indicated that much thought and careful attention had been given to the material sent them. The replies were exceedingly significant in indicating the demand of consumers of Census data for critical and interpretative appraisals of census results. A total of 124 letters were written, with the request that, if possible, immediate attention be given to the extensive material sent them. More than 50 replies were received within a two-week period. A list of the persons who were consulted on the monograph program, a copy of the letter and material sent to them, and an indication of the replies received are included in appendix E. Especial attention should be called to the letters from Dr. Benedect, who will not be at the advisory committee meeting.

Apparent from reading the letters from consultants is the general unanimity of certain types of comments as well as the differences in interests and opinions expressed in other comments. Most important, perhaps, of the striking patterns of response was the widespread expression of the desirability of the Census recognizing an obligation to provide analytical appraisals and interpretations to support the basic tabulations.

A few of the comments indicating the demand for Census interpretations are quoted below to illustrate the kind of comments received.

Ernest M. Fisher, American Bankers Association: "I believe that this program if executed will do much to increase the use and value of census material."

V. H. Pelz, Office of Production Management: "There are so many of these that will be of real value that it was hard to make any selection."

E. S. Draper, Assistant Administrator, FHA: "It is evident that many of the proposed monographs would be of great practical and direct value to the FHA in connection with its mortgage insurance activities and the studies that it carries on in regard to various aspects of its work."

I. S. Falk, Social Security Board: "They (members of the Census committee of the Social Security Board) were unanimous in their approval of the general nature of the undertaking and manifested considerable interest in a number of the suggested studies which they felt would be particularly useful to the Board."

"We consider it of real importance to the Board as well as to other agencies to have the Census interpretation of its data and methodology made available through such studies as Sampling in the 1940 Census of Population and The Integration of Employment Statistics."

Many of the respondents expressed strongly the special obligation of the Census to do methodological studies interpreting the reliability and significance of census data. Most important of these was Dr. Rice of the Budget Bureau, who said: "We believe that such interpretation should be regarded as an integral and necessary part of the task imposed by statute upon the Bureau of the Census, and, therefore, one which should be carried out in spite of the competing demands of defense activities. Indeed, the value of the census data to defense agencies as well as others will be greatly increased by making available in the same volume an exposition of the significance and limitations of the tabulated statistics."

Dr. Lorimer of the American University: "It seems to me that in choosing topics for Census monographs first consideration should be given to basic studies bearing on the evaluation of census statistics and methods of census procedure, the relation of information supplied by the various divisions of the Census, and the effect of changes in Census procedure on comparable data at successive periods. On the whole, it seems to me that studies of this sort are adequately and well represented in the proposed program, and they should not be sacrificed through pressure from groups interested in special topics."

Gladys Palmer, University of Pennsylvania: "In general, I believe that the Bureau of the Census has a primary obligation to interpret fully to outsiders the methodology used in the collection, classification, and tabulation of its data. Secondly, any historical comparisons of census data can be best made by the Bureau staff because of their detailed knowledge of the effects of changes in methodology on the interpretations of the data."

Many statements of the principles to be considered in developing a monograph program were received in the comments from consultants. Numerous consultants indicated the need for more integrated studies than some of those proposed by the Census, and suggested consolidations and broader treatment. While these suggestions were frequent, a few comments were to the effect that treatment of more limited subjects might be desirable. The general nature of the proposals for broader treatment is illustrated by the comment of I. S. Falk of the Social Security Board, in stating: "We are particularly concerned with the series of monographs relating to the labor market: that is, item 6 to 9, inclusive, of list 1 of the population and housing series. We would suggest that you give consideration to the advantages of combining or integrating these 4 topics in one monograph. It would appear to us that the subjects are so closely interrelated that they should be analyzed as parts of a whole."

The Department of Agriculture, also, in submitting their comments, suggested some subjects which represented combinations of Census titles or broadening of the field indicated by the Census.

The view that, in spite of the war situation, emphasis should be placed on appraisals and basic interpretations of census data was generally accepted. This view was well presented by C. A. Bliss of the Harvard Graduate School of Business Administration, who stated: "My feelings on Census Monographs is that they're fine, and that it would be a mistake not to have some with this Decennial Census. But we're in a war and manpower is at a premium. Therefore I should be inclined to favor:

- (1) Reports--such as the one on occupations--that might be of real value today.
- (2) Reports on income of the people because of need of information on the impact of the tax load.

- (3) (Not favored) Historical reports, while interesting, might well be deferred;
- (4) Reports on the technique of census taking, or of sampling should be encouraged. We tried new methods this time; we ought to learn from that experience.
- (5) Reports in areas newly covered in the census....."

Relevant comments of importance to the Census were made in many of the letters that need not be reproduced here. The letters have been referred to the divisions concerned, and copies are included in appendix E.

An abstract of the comments made in all of the letters received, as related to each specific monograph subject, is included in appendix C preceding the outlines of monographs. A review of these summary pages may be helpful to the Advisory Committee in formulating recommendations, and to the division chiefs in making decisions on the relative importance of various phases of the proposed work.

E. STATUS OF THE MONOGRAPH PROGRAM IN EACH DIVISION

The remarks made below concerning the status of the monograph program in each Division are based on (a) conferences with the representatives of each division in which special studies were classified into those most feasible for census work and those less feasible, and (b) memoranda from the division chiefs stating the position of their division in reference to the monograph program and making revisions in the lists of studies which are being given first consideration.

Since the replies from consultants were mostly received only during the past few days, the status of the work in each division has not yet been materially changed because of these letters. For these reasons, the statements regarding each division should be regarded as tentative and subject to revision. The picture in any one division may be changed by future developments of work within that division, changes in the budgetary situation for the Bureau as a whole, or by recommendations received from consultants or made by the Advisory Committee. All of the statements which follow assume that the requested appropriations for fiscal year 1943 are obtained. The outlines given below are not intended to be a complete statement of the prospects for monographs in each division but should be amplified and modified by any further consideration that must be given the problem by each division chief.

1. Agriculture, Irrigation and Drainage.

According to a memorandum dated October 18th from Z. R. Pettet, chief statistician for the Division of Agriculture, the following list of monographs is "ranked in accordance with their importance and with proper consideration given to the status of the studies at the present time and the

possibility of completing them."

- a. Plantation Organization in the South
- b. Farm Values and Farm Income by Tenure of Operator
- c. Areas of Intensive Poultry and Egg Production in the United States
- d. Small, Unusual, Non-Commercial and Part-Time Farms in the Census
- e. One Hundred Years of Agriculture
- f. Farm Mechanization and Facilities
- g. Influences of Land Drainage Courses in Utilization of Cut-Over Lands in the Lower Mississippi River Valley
- h. A Graphic Display of Irrigation Statistics
- i. A Study and Mapping of Types of Tobacco in the United States
- j. Utilization of Land
- k. Production and Disposal of Milk per Cows Milked by Size of Dairy Herd
- l. A Study of the Probable Frequency Groups to be Used in Presenting Census Data

According to Mr. Pettet "these 12 monographs probably could be completed and sent to the printer by December 1942 under favorable circumstances, such as money, sufficient clerical help, etc. We are willing to commit the division to doing the first nine of these with the exception of Farm Income by Tenure, which will require at least \$30,000 machine cost, and which has not been provided for." In addition to the \$30,000 required for the Farm Income Tenure study, Mr. Pettet estimates that approximately \$20,000 additional funds will be necessary for machine tabulation. All other additional technical and clerical help are available. These statements assume that requested

allotments for the decennial census period will be available to the division.

2. Population and Housing

In a statement dated October 20, Dr. Truesdell, Chief Statistician for Population, states that their monograph program is necessarily tentative at this time and will undergo considerable revision in the coming months. The following list represents monographs which seem most feasible at this time.

- a. The Characteristics of Youth in the United States, 1940
- b. Educational Status of the People of the United States, 1940
- c. Differential Reproduction in the United States
- d. The Aged Population of the United States
- e. Sampling in the 1940 Census of Population
- f. Unemployment in 1940
- g. The Nation's Labor Force, 1940
- h. Labor supply of the Nation's Industries
- i. Occupations of the Nation's Labor Supply
- j. Individual Incomes in the United States in 1939
- k. Family Incomes and the Rent or Value of Home
- l. Home Mortgage Financing in the United States, 1940
- m. The Use of Housing Census Statistics in Analyzing a Community
- n. Home Tenure and Vacancy in the United States, 1940
- o. Farm Housing in the United States, 1940
- p. The Negro in American Life, 1940
- q. Rent Value and Home Equipment in the United States, 1940

r. A Comparison of 1930 and 1940 Occupation Statistics

Dr. Truesdell's memorandum further states: "Present plans in the Division call for the preparation of statistics, census volumes, and monographs which will probably exceed available funds. The evaluation of the various elements of the program with a view to elimination of those deemed least important is still in progress, and the judgment of the Advisory Committee should be obtained on this matter." He says that it should be recognized that the monographs listed above are only a few of those which have been and are being considered by the Division of Population. Many of those which have been placed on the secondary list (not included above) have been placed there only because the date for the completion of the required tabulations cannot be accurately estimated at this time. If such data do become available in time the monographs which have been placed on the secondary list could probably be completed before the end of the Census period.

Since a good part of the work of the Population Division has not yet been completed, the budgetary condition of this division is rapidly changing. It is quite possible that the above statements which were based on Dr. Truesdell's memorandum of October 20 should be revised at the present time. As in other divisions the analytical studies represent only one phase of the work of the Population and Housing Division and it is necessary to consider them as in competition with other important phases of their program.

3. Census of Business Statistics

According to a memorandum of October 17 from F. A. Gosnell, Chief Statistician of the Census of Business, he states that it does not appear likely that the Division of Business Statistics can complete any special studies or monographs before December 31, 1942. "The Business Division is in no position to commit itself to completing or even undertaking any of these studies along with its regular work with its present staff by December 1942." However, if the Bureau should decide upon a program of preparing and issuing monographs in the business field, Mr. Gosnell recommends that the following subjects be given consideration in the order named:

- a. Estimates of Retail Trade in the United States
- b. Cooperatives in the Field of Distribution
- c. Estimates of Commodity Sales of Retail Stores in 1939
- d. Regional Patterns of Distribution

According to Mr. Gosnell the funds now available to the Business Division are not sufficient to undertake these studies. He states: "The expected allotment for the period January 1, 1942 to December 31, 1942, is not sufficient to carry the regular work of the division to completion according to present plans....." However, the division is contemplating the publication of a number of special studies.

4. Manufactures

The Division of Manufactures considers the following monographs and special studies to be of greatest value and most suitable for Census Bureau publication:

- a. Expenditures for Plant and Equipment 1/
- b. Location of Manufacturing Industries 1/
- c. Inventories in Manufacturers' Hands
- d. Net Value of Products
- e. Relationships Among Value of Products, Value added by Manufacture, and Cost of Materials Consumed
- f. Growth of Manufactures 2/
- g. Integration of Industrial Operation 2/

1/ Already in preparation.

2/ These would be continuations, bringing up to date monographs prepared from census material for earlier years.

In a memorandum of October 20 Mr. Daly, Acting Chief Statistician for Manufactures states: "In view of the uncertainty as to pending legislation, it is impossible to estimate what funds will be available in the Division of Manufactures within the fiscal year 1942. The allotment made for this year would provide for taking a biennial Census of Manufactures but would leave little if any for work on monographs. If the pending legislation becomes law, it is assumed that the Division would be directed to make one or more surveys of more or less restricted portions of the manufacturing field, but no estimate can be made as to the probable cost of work. If the pending legislation does not become law and a Census of Manufactures is taken in 1942, any preparation of monograph that is undertaken should be completed by the end

of June, as the personnel of the division would be fully occupied after that time with the regular census work.

"Technical assistance, from the staff of the Census Bureau, will be necessary in connection with the preparation of the monographs numbered c and d in the accompanying list."

5. Mineral Industries

Several monographs have been proposed in the field of mineral industries, but Mr. Kiessling, Chief of Mineral Industries states in his memorandum of October 17 that "...it will not be possible to complete any monographs by December 1942. In fact, at present it appears that no monographs or special studies can be undertaken until the regular Census is entirely completed." In addition he points out that studies in this field ".....would require high specialized technical skill and the necessary personnel would not be available in the Mineral Industries Division until after the end of the legal census period. Competent technical personnel, well versed in industrial technology is essential to the conduct of a successful study and this is precisely the type of personnel regarding which we already have a shortage." For this reason Mr. Kiessling suggests that the monographs for Mineral Industries be placed on a secondary list since they cannot be undertaken until the regular census is entirely completed.

6. Vital Statistics

The monograph program of the Division of Vital Statistics is well developed and work is going forward on the following monographs:

- (a) Analysis of Birth and Death Rates
- (b) Twenty-Five Years of Birth Registration in the United States
- (c) Comparability of Mortality Statistics
- (d) Results and Problems of Residence Allocation of Births and Deaths
- (e) Studies on Cardiac Disease

Complete outlines for these five monographs have been made and the work is well advanced in each case. Assuming that no cuts are made in the budgetary allotments for the remainder of this fiscal year and that the requested funds for fiscal 1943 are appropriated, the Division of Vital Statistics can complete this series of analytical studies. It is possible that one of the studies (Birth Registration) cannot be entirely completed by the end of the census period but in this case publication of the results of the study will be made in one form or another.

One other qualification should perhaps be made. An important part of the work of the Division of Vital Statistics relates to technical assistance and consulting service to the State offices collecting original birth and death records. Because of the importance of birth and death certificates to the problems of national defense and the present emergency, these local offices must not be permitted to break down under their current greatly increased load. If any considerable amount of the energies of the division which are now directed at special studies must be diverted to technical support of the State vital

statistics offices, it is possible that the monograph program will be curtailed or delayed. However, there is reasonable assurance that the program, as described, can be completed.

7. Division of State and Local Government

The Division of State and Local Government is in a somewhat different position from the other divisions of the Census Bureau, inasmuch as their main decennial work is begun during the year 1942. The most valuable monographs which could be prepared by this division would, therefore, be based on data which is not yet collected. In a memorandum of October 21 from Lewis B. Sims, Assistant Chief Statistician, he states "Although no monograph could be completed during the decennial census period some work could and should be done on the monographs during that time. It is anticipated there would be some budgetary allowance after July 1942 on through June 1944 for the prosecution of monographs in this Division." For this reason the Division of State and Local Government has not yet formulated a definite monograph program. They are, however, considering the following topics as studies which should be made during their own census period. The studies listed below are ranked on the basis of importance, cost and relevance:

- (a) Central Reporting of State and Local Government Statistics
- (b) Units of Local Government in the United States
- (c) A Statistical Analysis of Federal and State Aid
- (d) Public Employment in the United States, its History, Functions, and Status
- (e) Assessed Valuations and Property-Tax Levies

8. General (Including studies which are interdivisional in character and those under the direction of the Division of Statistical Research.)

A number of the studies given in the following list are interdivisional since they involve the combining of data from several separate divisions. The following list includes those being given the greatest consideration at the present time.

- a. The Application of Sampling to Census Inquiries
- b. Experience with Census Enumerators and Field Procedures
- c. Manufacturing Capital Expenditures in the United States
(See also the statement for the Division of Manufactures)
- d. Census Index of Physical Volume of Manufacturing Production
- e. Production and Distribution of Fats and Oils in the
Western Hemisphere. (Cotton and Oils)
- f. Analysis of Problems of Urban-Rural Fringe for Selected
Cities (Geographer)
- g. Structure of Population Distribution Within Selected
Land Use Areas (Geographer)

According to a memorandum received from E. R. Gray, Acting Chief Statistician for the Division of Statistical Research, "Other studies and monographs in which the division is greatly interested but probably will not have the funds to carry out unless an additional allotment can be obtained, include a report integrating census employment statistics, and a study of small business..... Another most important study which has been strongly urged in the Department of Agriculture, the Social Security Board, and others, but for which the division does not have sufficient funds is a matched sample of population and agriculture..... This matched sample would result in the monograph 'The Farm Family and the Characteristics of the Farm Enterprise' and would

also greatly enhance the value of some of the monographs now proposed in the Division of Agriculture." Dr. Gray continues "Out of the above program and on the basis of the resources assumed, I am willing to commit the division to completing by the end of the census period the studies on sampling, enumerators and field procedures, and capital expenditures...."

Two of the monographs listed above are primarily the responsibility of other divisions but they are included with the general list since data from several divisions could be used. The first is the monograph on Production and Distribution of Fats and Oils in the Western Hemisphere. According to a memorandum received from Mr. Hurley, Acting Chief Statistician for Cotton and Oils, this monograph cannot be completed with the resources available at present to the Division of Cotton and Oils. An additional \$4500 would be necessary for clerical work and its completion.

The monograph and special studies which might be undertaken by the Geographer are somewhat similar to the others given under the general list above, inasmuch as they are of interest to several subject matter divisions.

According to Mr. Batschelet no resources are available to the Geographer for the compilation of these monographs. His allotment for the present fiscal year is not adequate for the work now being done and no funds for monographs have been provided in the estimates for fiscal year 1948.

Appendix F

BRIEF HISTORY OF ANALYTICAL AND MONOGRAPHIC WORK IN THE CENSUS

(PRELIMINARY)

By Esther W. Staudt

INTRODUCTION

A review of the monograph program of the Bureau of the Census over a period of time implies some common agreement regarding the nature of a monograph. At any one time and among some selected group such an agreement may exist, but it is difficult to define any such agreement from one census to another, nor has the present writer, no matter what his views regarding what a monograph should be, attempted to say what a monograph is.

Certainly a review should include all publications designated as monographs. On the other hand, a monograph has come to be generally thought of as research, and some publications of an analytical nature have not been designated as monographs just as many "monographs" have not been analytical research jobs. Previous reviews have hurdled this difficulty by referring to "monographs and special reports." A third source of analytical material, however, is to be found in the regular volumes themselves, particularly in the census publications prior to 1920. A final difficulty, usually ignored, is encountered in defining "research" and "analytical material" — attractive words but words nonetheless — and thus arriving at some criterion by which reports and analyses contained in regular volumes might be selected. The writer confesses to a tendency to consider anything written, as contrasted with tabular presentation, worthy of mention. Under the circumstances, therefore, it is recommended that this paper be called simply a "Review" and each reader may supply his own version "of what."

In evaluating the written reports of earlier censuses, two quite opposite tendencies must be guarded against. Criteria by which we may test the worth of any research project today can not be fairly applied to these early reports — reports which might, under such a test, appear somewhat superficial. It must be remembered that, in many instances, authors were breaking entirely new ground. Many of these early reports which now seem too obvious to warrant publication actually served as the introduction to tabulations since become standard. If treatment of "problems" seems somewhat oversimplified, it must be remembered that actually there were fewer factors involved, or at least recognized, at the time of writing. Finally, and perhaps of greatest importance, data were much more sketchy though the projects seem, at the same time, more ambitious. In general, it might be said that our predecessors chose to explore those fields in which data were the most deficient. And this, by the way, may be instructive in present planning for this practice seems to have pointed the way to better statistics at a later date. Though the studies themselves were certainly not definitive and

offered no solution to the problems posed in the title, they may be said to have served a greater purpose in developing better enquiries.

Conversely, one must be careful not to eulogize the tremendous amount of written material in contrast with our present output, if such material represents speculative padding of the gaps. A sound cross-tabulation published without comment may actually tell a story far better than hundreds of words of philosophic meanderings.

The writer has reviewed the literature of the censuses of 1880 to 1930 and attempted to classify each report as tabular, analytical, or descriptive. It is often difficult, however, to categorize reports definitely. A report of 100 pages, for example, may contain only 25 pages of textual material but such material may represent true analytical research. Like the chemical engineer, the social scientist may find it necessary to develop elaborate laboratory tests of his hypotheses, in this case statistical tables, the results of which may be summarized in comparatively few pages. Unlike the engineer, the social scientist often measures the value of his research by the amount of text he writes and is unwilling to publish a terse, concise report. The present writer is unwilling to classify reports solely on the basis of the number of pages devoted to tables, and has compromised by classifying monographs and special reports in 2 or even all 3 categories if necessary, listing the primary characteristic first. The task has been great in the time permitted. Many of the classifications are the result of very hasty reviews, and it is feared that there is some inconsistency in the classifications assigned to similar reports of the various censuses. The classifications should therefore be considered tentative.

CENSUS OF 1880

The Bureau of the Census may be said to have been truly the central collecting agency of the government in 1880. Enquiries into special fields, such as forestry and fisheries, have long since passed to other agencies. Similarly the Bureau of the Census has restricted its enquiries in the major fields with regard to certain types of information while expanding the volume of data collected on the subjects retained. An exploration of "uninhabited territory" for example, would hardly be considered within the province of the Bureau today. Nor does the Bureau today issue reports explaining how a given product is manufactured, the types of machinery used, together with a detailed description of the mechanism of such machines, chemical analyses of ores, etc. A sudden introduction to reports of this type proved to be a pleasing experience but left the writer, whose orientation has been chiefly in terms of the "modern" census, somewhat in a quandary regarding classifications.

There were 17 reports, included in three regular volumes, which were published as monographs. Yet, when all the volumes or reports containing analytical or descriptive material are listed, there are 38 candidates for a listing of

"monographs or special reports." Only five of these are primarily tabular, that is, a presentation of tables with little or no comment. The remainder, however, are not strictly Analytical, though they may be classified as Analytical-Tabular and Descriptive or Descriptive-Tabular and Analytical. This is partly the result of the fact that statistics gathered in many of the special enquiries were rather sketchy and the authors found it necessary to present their observations in text form. Many of the papers here classified as descriptive are strictly just that -- detailed descriptions of newly developed machines, for example. On the other hand, it should be emphasized that most subjects of investigation were seldom considered except in relation to all pertinent facts. The volume on water-power, for example, is no mere collection of data on the volume of water-power used in manufacturing, but a learned and extended treatise on each of the "naturally defined watersheds" with information on flow of the river, tributaries, topography, resources, type of inhabitants and prospects for labor supply, number and type of factories located on the river, and finally, the amount of water-power used with an estimate of unutilized power and prospects for future development.

Of the 17 reports identified as monographs, 11 are for manufactures, 5 for agriculture and 1 on the oyster industry. The entire 38 studies listed are divided among the major subject fields now recognized as follows:

Population	1
Vital Statistics	3
Agriculture	6
Manufactures	18
Mineral Industries	4
General, or unclassified	6

These 38 listings embrace all, or sections of all, the volumes except volumes 4 and 7, "Railroads in the United States," and "Valuation, Taxation, and Public Indebtedness," respectively, which are the only volumes presenting statistical tables without comment or summarizations. Thirty-three of the references listed are special reports, some of which comprise an entire volume but most of which are related reports bound together to form the several volumes of the census. Only 5 are introductory summaries to statistical volumes and it should be noted that one of these, "Cotton Production," is the longest textual report in the census, having almost 2,000 pages. A brief summary of the nature of all the reports follows:

Population: A single introductory summary to the Population Volume comprised the entire analytical work in this field.

Vital Statistics: Three regular volumes in this field carried summaries and analyses of the tables presented. There are, for example, analyses of general death rates and deaths from specified diseases by age, sex, color or race, season of occurrence, and by regions based on topographical characteristics which would have some influence on health. Especial attention was given to death rates in cities and it was recommended that growing cities

develop better garbage and sewage disposal systems.

Agriculture: Three of the monographs written in this field dealt with the production of specific crops: cereals, tobacco, and meat. Every phase of cultivation of cereals and tobaccos was duly investigated; distribution, temperature and water-fall of each area, methods of planting and harvesting, "difficulties encountered," as insects, and diseases, grades of products, and marketing methods. The tobacco study had a twin report, The Manufacture and Movement of Tobacco. The report on meat production was equally complete, including even an account of "difficulties" with Indians in certain areas. It would have been a valuable guide to anyone contemplating going into the business of cattle-raising. It is today a wonderful commentary on the development of the West and almost rivals a Western drama. As has been noted previously, a fifth report on cotton production was the most extensive of all reports although it appeared as an "introductory statement" rather than as a monograph. The sixth agriculture report was a brief paper on flour-milling and consisted chiefly of a description of the "new" process developed for milling the hard spring wheat of the northwest.

Manufactures: Manufactures received by far the most attention at this census. One gets the impression that a wonderfully strange and new development was taking place and that every effort was made to understand and explain this development to the public. There were 17 reports in all. Twelve of these traced the development of specific industries; iron and steel, silk, cotton, wool, chemicals, petroleum, coke, building stone, glass, hardware, ship-building, and newspapers and periodicals. They vary in quality but many were exhaustive reports giving a history of inventions, development of the industry, capital invested, location of establishments, source of materials, techniques of manufacture, and uses of product, together with some reports on marketing of product, as well as some references to specific companies or mills with comments on labor conditions, housing of workers, etc. The remaining five include an essay on the factory system, a report on power used in manufactures (entirely tabular), a description of power machinery used in manufactures, and a report on interchangeable mechanisms used in manufactures. The last-named report refers to the development of the assembly-line technique of manufacturing intricate or complicated pieces of machinery.

Mineral industries: The reports in this field cover precious metals, iron resources, coal, and mining laws. The reports on iron and coal are a combination of the presentations of the cattle report in agriculture and the industry reports in manufactures. The author of the cattle report conducted explorations into unknown territory to find new areas suitable for cattle raising. The author of the iron report visited not only every mine in the United States but every known deposit of iron ore. He gathered and analyzed more than 1,000 samples and published a report which should have been helpful in the development and expansion of the industry.

General: "Social Statistics of Cities" is written as text but could be summarized in tabular form if the data were sufficiently complete. "Statistics of Wages and Necessaries of Life" presents tables for individual firms in selected cities, giving wages on the one hand and cost of clothing

groceries, rent, etc., on the other. The tables were compiled for the purpose of measuring the cost of living or real income but, in the end, no attempt was made to tie them together.

Finally, two reports, the "History, Population and Resources of Alaska" and "The Seal-Islands of Alaska" were the products of "extensive personal explorations" into little-known territory and read like travelogues.

CENSUS OF 1890

Though the total number of pages published in the 1890 census exceeded that of 1880, and as a matter of fact established a record not equalled until the 1930 census, there was less textual material than in 1880. This was due in part, if not largely, to the fact that more comprehensive statistical data were collected and the tables "stood by themselves." In general, there was an expansion in the scope of basic statistics and a restriction of special enquiries and textual accounts of economic phenomena. On the other hand, there are more summary analyses of basic statistics of population and vital statistics in particular, published as a part of the regular volumes.

Altogether, there were 18 instances of "research" distributed among the general subject fields as follows: Population, 3; vital statistics, 7; agriculture, 1; manufactures, 1 (17 reports); mineral industries, 1; and general, 5.

There were six publications designated as monographs. These were: Education in the United States, a special enquiry; Social Statistics of Cities; Vital Statistics of Boston and Philadelphia; Vital Statistics of the District of Columbia and Baltimore; Vital Statistics of New York and Brooklyn; and Agriculture by Irrigation. All of these are primarily tabular in nature. The volume on education, for example, contains 141 pages of which about one-third are devoted to a description of the methods, inadequacy of reports, need for standardized records, and description of types of schools.

The volume on Social Statistics of Cities is merely a compilation of all information available on each city regarding altitude, area and density of population, boards of health, streets and alleys, street lighting, waterworks, sewers, parks, cemeteries, public buildings, places of amusement, saloons, public vehicles, licensed dogs, fire and police departments, and suburban travel. Admittedly, it is something of a hodgepodge but it appears to exemplify an interest in how our cities were growing, how city dwellers were protected from the evils of urbanization, etc.

The vital statistics volumes, while containing no comprehensive analytical generalizations, give evidence of an analytical approach. Mortality and morbidity statistics are presented by wards and are accompanied with one-sentence descriptions of social and economic conditions within the wards. These data, moreover, are presented on shaded or colored maps and it is apparent

that the author was looking for patterns and relationships. The monograph on Agriculture by Irrigation presents various agricultural data for irrigated areas.

In addition to these monographs, there were 5 reports which were first cousins of monographs: Vital Statistics of Cities of 100,000 Population and Upward; Manufactures Data for Selected Industries; Mineral Industries, the regular volume; Population and Resources of Alaska; and Real Estate Mortgages, a special study. The Vital Statistics volume is similar in treatment to the monographs published for 6 selected cities but for some reason was not also identified as a monograph. The manufactures volume includes reports on all industries covered in monographs in 1880 as well as some industries recently risen to importance. The data presented are superior to those of 1880 and the text is more limited but still traces the development of each industry and gives particular attention to innovations developed since the last census. The report on mineral industries covers 37 products of mines and quarries and reads like a textbook. The report on Alaska is similar to that of 1880 but is somewhat more extensive and utilizes reports of various travelers and explorers as well as the observations of the author. The volume on Real Estate Mortgages is the product of a special enquiry. Most of the 943 pages are devoted to tables but there is also included a short analysis of results and most particularly a good statement on methodology.

There are five instances in which summaries preceding the "general tables" of the regular volumes represent contributions of an analytical type. These "summaries and analyses of data" appear in regular volumes on the following subjects: Population; Vital Statistics; Farms and Homes, Proprietorships and Indebtedness; Insane, Feeble-minded, Deaf and Dumb, and Blind; Crime, Pauperism, and Benevolence.

Finally, there are listed two reports which are not monographic in nature but which represent a compilation of census data from all the major fields: Statistical Atlas of the United States, and the Abstract of the Eleventh Census.

CENSUS OF 1900

In 1900 there were 31 special reports, included in 10 different volumes of the regular reports, which represent an analytical approach to the data collected by the census. Nine have been classified as predominantly tabular and 22 as primarily analytical. They vary greatly in quality and quantity, from 3 pages (Density of the Population) to several hundred pages.

By this time, it had become accepted practice to include in the regular volumes a presentation of the plan and scope of the enquiry for which data were given, evaluation of the replies, and a summary and analysis of the results. Such analyses were often very extensive and included several distinct and separate analytical studies assembled as chapters within these "introductory notes."

The introduction to the manufactures volume, for example, contains 4 chapters which are included in the count of 31 reports as separate reports. As one part of one chapter on "summary and analysis of results" is one of the most significant studies made by the Bureau — The Localization of Industry, by Frederick S. Hall. Witold Krzyzanowski states of this almost buried paper "Its importance . . . lies in the fact that it is the first (study of localization of industry) based on statistical data. The influence of his (Hall's) work on the American Economists was very great. They still take it as a point of departure, acknowledging his views and using his terminology. If we consider the time of its appearance, it is really good, although today it does not satisfy us completely, being primarily an excellent compilation of facts."¹/

The other chapters of this introduction deal with plan, method, and scope of the census, a special study of urban manufactures, and a study of power employed in manufactures.

Similarly, the volumes on vital statistics and agriculture were prefaced by detailed descriptions of the methods of collection and compilation of data and summaries and analyses of the data. Many brief special studies were likewise included, as a calculation of standardized death rates, an innovation in American census publications.

Two additional manufactures studies were incorporated in the regular volumes, "Patents" and "Utilization of Wastes and By-Products." The industry reports, as in previous censuses, were monographic in treatment. Three special reports, which today would be issued as monographs, were "Occupations," "Status of Women at Work," and "Employees and Wages." This last was an enquiry into the meaning of wage data and may be classified as methodological. In referring to these reports, it is interesting

¹/ Witold Krzyzanowski, Literature of Location of Industries — Journal of Political Economy, Volume 35, February 1927, p. 280.

to note that as early as 1900, studies were based on samples. A part of "Status of Women at Work," for example, was based on tabulations for 27 selected cities.

Finally, a special volume was published called "Supplementary Analysis and Derivative Tables," containing 17 special reports and a section of cross-classifications which were considered self-explanatory. Much of the textual material is of the type now included in the introductory sections of the regular volumes. Some of the tables, representing a new approach in 1900, are now standard in the regular volumes. But much of the material still remains legitimate subject of special enquiry.

CENSUS OF 1910

There were no special reports issued for this census except the volume presenting all tabulations for Indians in the United States and Alaska.

The Director's transmittal letter for Volume X, Reports for Principal Industries in Manufactures, however, refers to these reports as "special reports or monographs." For many industries, the text is simply a verbal statement of the tabular data. For others, it is more elaborate. Particular attention is paid to size of establishment, as measured by number of wage earners and value of product, and many analytical tables were prepared in this connection. For example, one table is presented, by industry, showing the number of establishments and the total value of product of establishments in given value-of-product-per-establishment classes.

The 10 other "regular" volumes, though not representing a collection of special reports, sometimes give the impression of containing as much text as tables. The general population report, for example, is divided into chapters by specific population characteristics, as age, sex, race, marital condition, etc. Each chapter contains an evaluation and summarization of the data presented in the "general tables" relating to a given characteristic. The text is strictly expository but points up the tables giving important percentage distributions and percentage changes, etc., so that it is possible to read the various texts and have a fairly good knowledge of the results of the census enumeration without referring to the general tables. This is true of all the volumes -- agriculture, manufactures, mines and quarries, as well as population.

It is impossible for the present reviewer to state how adequate the evaluations of the data were but it is evident that the writers were making a conscious effort to weigh the adequacy of returns and to caution readers wherever necessary. In volume IV, Occupation Statistics, for example, the author examines the "sufficiency" of returns, particularly in the South. As in many other evaluations, reasons given for inaccurate returns are chiefly speculative, but it is significant that internal checks were used in so far as possible to give some measure of accuracy or inaccuracy. The large number of children gainfully occupied in the

South, for example, was questioned and the returns for these children were carefully scrutinized as to type of occupation reported, age, sex, and color as compared with the same characteristics of children gainfully occupied in other regions.

Again, the Agriculture report carries a warning that 17 percent of farmers did not occupy the farms on which they were enumerated during the preceding year and that their replies concerning small crops raised on these farms are therefore mere guesses.

CENSUS OF 1920

To prevent undue delay of publication of tabulations, the practice of including analytical material in the regular volumes was discontinued in 1920 and textual material limited to only a few pages of interpretative material and brief statements of definitions. Detailed analyses of selected subjects appeared in 13 monographs published throughout the decade. Two of these monographs, though a part of the series relating to 1920 data, actually covered reports of the census of manufactures through 1923 and 1927 respectively. Only 4 of the 13 monographs were written by Bureau employees.

Some of these monographs contain more tabular material than text but all are the result of intensive analytical work. The tabular materials are at least special-purpose tabulations and only 3 have been classified by the present writer as primarily tabular. There is an apparent shifting at this date to a research program centered around population, 9 of the monographs being in this field, 3 on manufactures, and 1 on agriculture.

In general, the authors attempted some evaluation of the data compiled in the 1920 canvasses relating to the subject of the monograph. Three utilized "selected samples" as bases for special tabulations.

CENSUS OF 1930

The policy established in 1920 was continued in 1930. Brief analytical statements were included in the regular volumes but the greater part of the analytical work appeared in 24 monographs or special reports, most of which were published in 1933. These monographs were distributed among the major subject fields as follows: Business, 9; agriculture, 6; population, 5; manufactures, 2; vital statistics, 1; and general, 1.

Dr. Stouffer, in a publication of the National Resources Committee, states that ". . . many if not most of these, do not represent analytical research in the stricter sense of the term. They were mainly vehicles for carrying basic tabulations for one reason or another not included in the regular decennial publications and they comprised a minimum of explanatory text."

Each writer, of course, might classify the monographs differently and there is some question as to the meaning of "analytical research in the stricter sense." Of the 24 monographs, however, only 9 are predominantly or wholly tabular presentations and at least 3 of these are publications of special-purpose analytical tables. These 3 are "Large-Scale Farming in the United States," "Taxes on Farm Property in the United States," and "A Social-Economic Grouping of the Gainful Workers of the United States, 1930." The tabulations published in "Taxes on Farm Property," for example, are special tabulations for 100 selected counties in 11 States and were developed to test the theory that the ratio of real estate taxes paid to the value of farm real estate declines progressively as the value of farms increases. The tabulations of gainful workers represent a "new" concept of classification of workers and are the result of analytical thought.

Nine of the 24 monographs seem to the present writer to be truly analytical in character. These are: Average Number of Children Per Woman in Butler County, Ohio, 1930; Introduction to the Vital Statistics of the United States, 1900 to 1930; Types of Farming in the United States; Farm Real-Estate Values in New England States, 1850 to 1930; The Farm Horse; Location of Manufactures, 1899 to 1929; Materials Used in Manufactures, 1929; Employment and Wages in the Retail Industry; and Multiple Types of Wholesaling.

The remaining six are special reports on retail distribution, all of which are here classified as analytical-tabular. Five of these are special reports on retailing of food, apparel, drugs, shoes, and automobiles. The sixth is the report, "Analyzing the Small City and Rural Market Area." These 6 reports might be said to be "descriptive" of business structure and practices in retail trade. They represent the "beginnings" of understanding of one phase of our economy and in this sense are similar to the early descriptive reports of manufacturing industries. They are, however, predominantly analytical in approach and represent a contribution beyond a publication of tables alone.

CENSUS OF 1880

Item Number	Identification		Year Published 2/	Volume in which published	Number of pages 3/	Identified as a monograph	Report or Summary text within regular volume	Tentative classification 4/
	General Field	Title and Author 1/						
1	Pop.	Distribution of Population, etc., by Frances A. Walker and Henry Gannet	1883	I	79	No	S	Da
2	V.S.	Mortality and Vital Statistics	1885	XI	47	No	S	A
3	V.S.	Mortality and Vital Statistics	1886	XII	158	No	S	At
4	V.S.	Defective, Delinquent, and Dependent Classes, by Frederick Howard Wines	1885	XXI	55	No	S	A
5	Agr.	Cereal Production, by William H. Brewer	1883	III	173	Yes	R	At,d
6	Agr.	Flour-Milling, by Knight Neftel, C. E.	1883	III	22	Yes	R	At,d
7	Agr.	Tobacco Culture, by J. B. Killibrew 5/	1883	III	285	Yes	R	At,d
8	Agr.	Manufacture and Movement of Tobacco, by J. R. Dodge	1883	III	61	Yes	R	At,d
9	Agr.	Meat Production, by Clarence W. Gordon	1883	III	162	Yes	R	At,d
10	Agr.	Cotton Production (2 volumes), by Eugene W. Hilgard, Ph.D., and others	1884	(V (VI	1,772	No	S	D
11	Mfg.	Power Used in Manufactures, by Herman Hollerith, E.M.	1883	II	33	Yes	R	T
12	Mfg.	The Factory System of the United States, by Carroll D. Wright	1883	II	78	Yes	R	A
13	Mfg.	Manufactures of Interchangeable Mechanisms, by Charles H. Fitch, D.E.	1883	II	85	Yes	R	D
14	Mfg.	Manufacture of Hardware, Cutlery, and Edge-Tools, by Charles H. Fitch, D.E.	1883	II	19	Yes	R	Da,t
15	Mfg.	Iron and Steel Production, by James M. Swank	1883	II	164	Yes	R	Da,t
16	Mfg.	The Silk Manufacturing Industry, by William C. Wyckoff	1883	II	31	Yes	R	At,d
17	Mfg.	Cotton Manufactures of the United States, by Edward Atkinson	1883	II	16	Yes	R	A
18	Mfg.	Wool Manufacture in All Its Branches, by George W. Bond	1883	II	19	Yes	R	T
19	Mfg.	Manufacture of Chemical Products and Salt, by William L. Rowland	1883	II	38	Yes	R	Td

CENSUS OF 1880

Item Number	Identification		Year Published 2/	Volume in which published	Number of pages 3/	Identified as a monograph	Report or Summary text within regular volume	Tentative classification 4/
	General Field	Title and Author 1/						
20	Mfg.	Manufacture of Glass, by Joseph D. Weeks	1883	II	114	Yes	R	A _{t,d}
21	Mfg.	The Ship-Building Industry of the United States, by Henry Hall	1884	VIII	276	No	R	D _{t,a}
22	Mfg.	Newspapers and Periodicals, by S. N. D. North	1884	VIII	446	No	R	D _{t,a}
23	Mfg.	Petroleum and Its Products, by S. F. Peckham	1884	X	319	No	R	D _{t,a}
24	Mfg.	The Manufacture of Coke, by Joseph D. Weeks	1884	X	114	No	R	D _{t,a}
25	Mfg.	Building Stones of the United States, by George W. Hawes and others	1884	X	410	No	R	D _{t,a}
26	Mfg.	Water-Power of the United States (2 entire volumes), by George F. Swain, S.B., James L. Greenleaf, C.E., Dwight Porter, Ph.B.	1885	XVI XVII	1,662	No	--	D _{t,a}
27	Mfg.	Power Machinery Used in Manufactures, by Herman Hollerith and others	1888	XXII	530	Yes	R	D
28	Mfg.	Ice Industry of the United States, by Henry Hall	1888	XXII	41	No	R	D _{t,a}
29	Min.	Precious Metals (entire volume), by Clarence King, S. F. Emmons, and G. F. Becker	1885	XIII	541	No	--	A _t
30	Min.	Mining Laws (entire volume), by Clarence King	1885	XIV	705	No	--	D
31	Min.	Iron Resources of the Republic, by Raphael Pumpelly	1886	XV	601	No	R	A _{t,d}
32	Min.	The Coals of the United States, by Raphael Pumpelly	1886	XV	194	No	R	A _{t,d}
33	Gen.	Social Statistics of Cities, (2 volumes), by Col. G. E. Waring	1886	(XVIII XIX)	1,485	No	R	T _{a,d}
34	Gen.	Statistics of Wages and Necessaries of Life, by Joseph D. Weeks	1886	XX	688	No	R	T
35	Gen.	Population, Industries, and Resources of Alaska, by Ivan Petroff	1884	VIII	190	No	R	D _t

CENSUS OF 1880

Item Number	Identification		Year Published 2/	Volume in which published	Number of pages 3/	Identified as a monograph	Report or Summary text within regular volume	Tentative classification 4/
	General Field	Title and Author 1/						
36	Gen.	The Seal Islands of Alaska, by Harry W. Elliot	1884	VIII	188	No	R	D _t
37	Gen.	Forest Trees of North America, Exclusive of Mexico (entire volume), by Charles W. Sargent	1884	IX	612	No	R	D _{t,a}
38	Gen.	The Oyster Industry	1888	XXII		Yes	R	

1/ Summaries and analyses appearing in regular volumes and unsigned are here attributed to the person under whose supervision the volume was prepared.

2/ Some reports published in bound volumes appeared earlier as bulletins. The publication date here shown is that of the final volume.

3/ Number of pages refer to the text material only, if reference is made to an introductory summary in a regular volume; to total pages if reference is made to a report.

4/ Material is tentatively classified as predominantly tabular, "T"; analytical, "A"; or descriptive, "D". In some instances, it was difficult to determine the proper classification and sub-classifications have been noted in these cases, as T in a case where most of the publication is devoted to tables but in which the tables are special-purpose tables and some analytical text is presented. These classifications are, in many instances, based upon a hasty review of the report and are subject to change.

5/ In 1940 this would be classified in manufactures but it was prepared by the Agriculture Division and is therefore classified there.